Team 5-Mile Creek
Our Watershed

5-mile Creek

Natural Features: Wetlands, small bodies of water, and Forested areas

Man-made features: Farm areas, residential areas, Pond Hill Farm
Special Aspects

Large area of wetlands

Pond Hill Farm

A couple known, large, tributaries
5-Mile Creek: The History

Up to one hundred years ago (environment)

   Untouched forest
Hardwoods and Conifers.

   Used to be mostly white pine.

Large expanses of Wetlands

Small subsistence farming
5-Mile Creek: Logging History

- Michigan logged by settlers
  - 1870-1890
    - Several forests cut down
  - Rail transportation
    - 1850’s
- Probably what contributed to the dam being put up at 5-Mile Creek.
  - The water power was used to power a saw mill.
- Land was also used for larger scale, yet still small farms
- http://www.michigan-history.org/lumbering/LumberingBriefHistory.html
5-Mile Creek: Recent History

Housing development

- Lawn Care products into watershed

Rise of small-scale commercial farming

- Pesticides and Fertilizers

Birchwood Farms housing development

- Golf Course maintenance
  - lawn care products into watershed
Additional History

around 100 years ago
  More horses than cars

Anna Stanton
  Lived and worked in the same house
Point Source pollution in 5 Mile Creek watershed

Dam on private property, upstream of monitoring site, failed this spring sending large amounts of sediment, nutrients and debris into the creek.
Nonpoint source pollution in 5 Mile Creek watershed

Agriculture and Livestock

Pondhill Farm attracts people/traffic to the watershed and uses some Fertilizers

Housing developments on the watershed
Field Work

Worked well together
- Melissa and Ian Collaborated on site sketch
- Everyone worked on collection

Cold water
- Waders

Rapidly changing temperatures
- Depending on location
Field Work

Long walk

Got lost
  ◦ Navigation Skills
    ◦ Intuition

Heavy equipment
  ◦ Team Work
Stream Name: 5 Mile Creek Major Watershed: 5 Mile Creek

Location: M-119 downstream

Date: 5/11/16  Water Sample Collected  Yes  No  # of Glass Jars Used: 8

Collection Start Time: 9:30 PM    Collection End Time: 12:00PM

Name of Person Completing Datasheet: Melissa Rockwell, Armando Carroll

Collector: Josephine Laughlin, Lauren Hibbler

Other Team Members: Samuel Gage, Ian Sweet, Kyle Heubner

* This site was monitored the spring and fall of 2015
Stream Conditions:

Water temperature: 8 (°C)  Average Water Depth: .2m

Air Temperature: 8 C  Weather (today and note rain from last few days): clear for past week

Is the substrate covered with excessive silt?  No  ____ Yes (describe: __________________)

Substrate Embeddedness in Riffles:  ____ 0-25%  ____ 25-50%  ____ > 50%  ____ Unsure

Water turbidity/clarity (circle): clear  Somewhat turbid (cloudy)  Very turbid (muddy)

Water Chemistry:

- Turbidity: 0 JTU  pH: 8  BOD: 4ppm
- Dissolved Oxygen: 8 ppm  68% saturation
- Nitrates: 20ppm  Phosphates: >1 ppm
- Bacteria/Coliform (circle): negative
Testing Water Chemistry

Good ph of 8

Biochemical oxygen demand lower than amount of dissolved oxygen

Less than one parts per million on phosphates

Nitrates a little higher
20 parts per million (not terrible)
5 ppm before the dam breach
SITE SKETCH

Please make a sketch showing the length and shape of the stream reach that was sampled by your volunteer group. Remember to include where water sample was collected, approximate locations of habitat types (riffles, runs, pools, woody debris, etc.), approximate distances of stream length sampled and stream width, flow direction, and north arrow.

Other comments (were there any changes in methodology or unusual observations?):

Melissa drew most of it. There was a dam failure in March.

Datasheet version 5/23/11
Macro collection areas

**Macroinvertebrate Collection:**

- Riffles
- Aquatic Plants
- Submerged Wood
- Runs
- Leaf Packs
- Root Wads
- Pools
- Stream Margins
- Other: __________________
- Cobbles
- Undercut banks/Overhanging Vegetation

Did you see, but not collect, any **live crayfish**? (___ Yes  ___ No), or **large clams**? (___ Yes  ___ No)?

Other wildlife & fish? (___ Yes  ___ No) Describe: 5 Trout
Found Macroinvertebrates (Sensitive)

Caddisfly Larvae *Trichoptera*

Mayfly Nymphs *Ephemeroptera*

Stonefly Nymphs *Plecoptera*
Found Macroinvertebrates
(Somewhat Sensitive)

Beetle Adults
*Coleoptera*

Beetle Larvae
*Coleoptera*

Black Fly Larvae
*Diptera*

Net-spinning
Caddisfly Larvae
*Hydropsyridae; Trichoptera*

Scuds
*Amphipoda*

Sowbugs
*Isopoda*
Found Macroinvertebrates (Tolerant)

Aquatic Worms
Oligochaeta

Pouch Snails
Gastropoda

Midge Larvae
Diptera

True Bugs
Hemiptera
**MICorps Rating**

- **How is the stream quality score determined?**
  
  # of sensitive, somewhat sensitive, and tolerant macroinvertebrates

  **Scores**

  **Addition**

- **What was the sampling process?**

  Kick netting

  Submerged wood & rocks

- **Share your findings?**

- **What was your stream rating?**

<table>
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<th>Group</th>
<th>Sensitive</th>
<th>Somewhat Sensitive</th>
<th>Tolerant</th>
<th>Total Stream Quality Score</th>
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Total Stream Quality Score = 38

(\text{Sum of totals for groups 1-3; round to nearest whole number})

Check one:

- [ ] Excellent (>48)
- [ ] Good (34-48)
- [ ] Fair (19-33)
- [ ] Poor (<19)
Issues in your Watershed?

Issues we found
  Dam Break
    Equilibrium needs to be found

Past & Current issues
  Urban impacts
Possible Sources of Pollution

● Old gas station
  ○ Old tanks underground
● Birchwood property
● Possible gas leaks from cars on roads
● Dam breaking
Recommendations?

Dam removal would be ideal but it’s on private property.

Continue monitoring in spring and fall to observe future impacts.

This is the 5 mile creek after the breach upstream of the dam.
Stewardship Experience

The stewardship means a lot to us because it lets us know that our future of having clean/drinkable water will stay that way as long as the stewardship is still here.

The reason why this matters is because this will affect our ecosystem by making the water not drinkable and inhabitable for the fish.
Thank You

The 5 Mile Creek team would like to thank Dave Cummings-Preserve Monitor\resident, Caroline Keson and Lauren Dey – LTBB Water Resource Specialists, Jen Gelb - Restoration Ecologist, Mike Lynch - Little Traverse Conservancy, and Allen Talcott - Team mentor.

Dave Cummings and Jen Gelb provided information about the Creek and its surroundings that helped the team with their findings. Caroline Keson and Lauren Dey helped the team with their findings, and Allen Talcott mentored the team.